

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of)
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Replacement of Part 90 by Part 88)
to Revise the Private Land Mobile)
Radio Services and Modify the)
Policies Governing Them)
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and)
)
Examination of Exclusivity and)
Frequency Assignment Policies of)
the Private Land Mobile Radio Services)

PR Docket No. 92-235

COMMENTS OF AERONAUTICAL RADIO, INC.

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SUMMARY

As active participants throughout the course of the instant rule making, Aeronautical Radio, Inc. (ARINC) and the air transport industry generally applaud the rule changes adopted by the Commission in an effort to promote more efficient use of private land mobile radio (PLMR) spectrum below 800 MHz. Because the air transportation industry is heavily dependent on land mobile communications in and around airports to facilitate effective and timely airplane arrivals and departures and to ensure the health and safety of the traveling public, the industry greatly appreciates FCC attentiveness to shortcomings in the available spectrum allocations.

As discussed in the following comments, however, ARINC and the air carrier industry submit that the Commission will further enhance the effectiveness of the air terminal use (ATU) allocation if the agency:

- recognizes that the existing rules grant air carriers "shared exclusivity" on the air terminal use (ATU) channels in the vicinity of the nation's largest airports, and that this exclusivity, if properly coordinated, will result in efficient spectrum use without the need for additional measures such as spectrum fees and auctions; and
- acknowledges that successful and efficient use of the ATU channels requires designation of a single frequency coordinator for these channels who is familiar with the unique characteristics of ATU operations.

ARINC submits that the adoption of rules and policies consistent with these recommendations will serve the public interest by promoting spectrum efficiency and by ensuring the success of air terminal communications essential to efficient air transportation and the safety and security of the traveling public.

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COMMENTS OF AERONAUTICAL RADIO, INC.

Aeronautical Radio, Inc. (ARINC), by its attorneys, hereby submits these comments in response to the Further Notice of Proposed Rule Making adopted by the Commission in the above-captioned docket on June 15, 1995.¹ As discussed in detail below, ARINC and the air transport industry generally support the Commission's efforts to formulate technical and operational rules that will promote efficient use of private land mobile radio (PLMR) spectrum below 800 MHz. In the industry's view, however, these goals will be further maximized -- and the communications requirements unique to air terminals better addressed -- if the Commission:

- recognizes that the existing rules already grant the air carriers "shared exclusivity" on the air terminal use (ATU) channels in the vicinity of the

¹ Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Radio Services, FCC 95-255 (released June 23, 1995) [hereinafter *Further Notice*].

nation's major airports and that such exclusivity, when properly coordinated, will result in spectrum efficiency in accordance with the demand for service and the dictates of the marketplace, eliminating the need for additional frequency management stratagems, such as spectrum fees and auctions; and

- acknowledges that successful and efficient use of the ATU channels requires designation of a single frequency coordinator familiar with the unique characteristics of ATU operations.

ARINC submits that the adoption of rules and policies consistent with these recommendations will serve the public interest by promoting efficient spectrum usage and by helping to make sure that air terminal communications essential to efficient air transportation and the safety and security of the traveling public are carried out successfully.

I. Introduction/Background

ARINC serves the communications needs of the air transport industry through a variety of innovative and highly efficient systems that communicate with aircraft in flight and provide on-ground communications at numerous U.S. airports. The company was established by the airlines in 1929, at the urging of the Federal Radio Commission, as a means for satisfying the full range of communications services required to support civil aviation. The wisdom of the decision to create ARINC has been demonstrated by the ability of the air transport industry to utilize communications efficiently and effectively, within largely static allocations, despite tremendous growth in air travel and massive changes experienced by the industry.

Today, ARINC offers VHF air-to-ground voice service that provides continuous coverage throughout the continental U.S. and Hawaii. In addition, ARINC's VHF air-to-ground data system -- ACARS -- extends over most of North and Central America, Hawaii, and out the Aleutian chain. ACARS has become the *de facto* world-wide standard for air-to-ground data communications, serving as the template for the implementation of compatible systems in Europe and the Far East. ARINC also provides HF radio service throughout the Flight Information Regions (FIRs) committed to the United States by the International Civil Aviation Organization (ICAO) for operational and air traffic control communications. ARINC's GLOBALink service -- the first operational aeronautical satellite service -- has been certified by the Federal Aviation Administration (FAA) for digital way-point position reports on oceanic flights. In addition to these offerings, which provide communications to aircraft in flight, ARINC operates 800 MHz trunked land mobile radio systems at fifteen airports in the United States.

Furthermore, through the Aeronautical Frequency Committee (AFC),² ARINC performs the function of reviewing and coalescing the requirements and positions of the aviation industry on communications matters. As such, ARINC is uniquely qualified to

² Members of the AFC represent the Aircraft Owners and Pilots Association (AOPA), the Helicopter Association International (HAI), National Business Aircraft Association (NBAA), American Airlines, America West Air Lines, Continental Airlines, Delta Airlines, Federal Express, Northwest Airlines, TransWorld Airlines, United Airlines, United Parcel Service, and USAir.

comment on FCC proposals likely to affect the spectrum used by air transport companies in the provision of air terminal communications.

The primary source of spectrum for on-ground air terminal communications is the ten ATU frequency pairs in the 450-470 MHz band reserved for the servicing and supplying of aircraft in and around airports serving major U.S. cities.³ In addition, to satisfy their heavy demand for air terminal communications, airlines have been using the twelve "local control" channels governed by 47 C.F.R. § 90.75(c)(29) and have made extensive use of 12.5 kHz splinter channels, albeit with inferior service quality. Significantly, the instant proceeding offers the Commission an excellent opportunity to enhance greatly the future efficiency and usefulness of these spectrum resources. In the Report and Order aspects of the proceeding, the Commission adopted a number of rule changes designed to increase the effective use of PLMR frequencies by imposing a narrowband channel plan and by allowing licensees greater technical flexibility. In addition, the Commission solicited commenters' views on a number of proposed market-based incentives that the agency hopes will maximize efficient use of PLMR spectrum. These include a proposal to grant licensees shared exclusivity with a right of resale and proposals to impose spectrum fees and to award future licensees through competitive bidding.

³ The ATU channels are shared with other Business Radio users out of the immediate vicinity of these airports.

ARINC's comments respond to the Commission's proposals in this latter regard. As ARINC has documented throughout this proceeding, the demand for air terminal communications has spiraled over the last twenty years, causing what was at the outset an insufficient allocation to become increasingly less adequate.⁴ This demand is expected to continue rising with the growing quantities of airline passengers and cargo, and steady increases in ATU communications requirements. As discussed in detail below, air carriers' unique and growing need for land mobile communications capacity at the nation's air terminals is essential to safe and efficient air transportation. ATU communications requirements cannot be met by massive common carrier systems, which are tailored to the provision of lower grade, wide-area services as opposed to the high-grade, heavily concentrated systems necessary for effective air terminal operations.

Clearly, the more efficient and more practical alternative for satisfying the growing demand for air terminal communications is for the Commission to permit air carriers to control the ATU channels, and to continue allowing these licensees to obtain airline shared exclusivity on the ATU frequencies in and around airports. As noted by the Commission in the *Further Notice*, channel exclusivity generally translates into

⁴ See Comments of Aeronautical Radio, Inc., PR Docket No. 92-235, at 4 (filed May 28, 1993) (in its comments, ARINC provided figures showing that, in the two decades from 1971 through 1991, airline revenue passenger enplanements have grown from 171.4 million people to 484.4 million people, and that the Federal Aviation Administration predicts that passenger enplanements will approach 800 million people by the year 2003).

better service and is necessary to facilitate the use of spectrum efficient technologies, such as trunking and digital access techniques.⁵ Moreover, if coupled with knowledgeable frequency coordination, greater spectrum efficiency will result from the airlines' exclusive use of the ATU channels in accordance with the demand for service and the dictates of the marketplace. This in turn will render other, more intrusive frequency management options -- such as spectrum fees and auctions -- unnecessary. In this connection, ARINC and the air transport industry also suggest that successful and efficient use of the ATU channels requires the designation of a frequency coordinator familiar with ATU operations. Accordingly, the industry requests that ARINC be redesignated as the single frequency coordinator for ATU channels in the vicinity of airports serving the nation's largest metropolitan areas.

II. Land Mobile Communications Requirements Of Air Carriers And Support Organizations At The Nation's Busiest Airports Require Extremely Efficient Use Of The Spectrum Currently Designated For ATU.

Air carriers and their support organizations require immediate, highly reliable land mobile communications in the vicinity of airports in order to promote safe and efficient air transportation and to ensure the health, safety, and well-being of passengers and workers. In addition to being transportation hubs with tens of thousands of aircraft-related operations, the nation's air terminals are mini-cities with millions of visitors every year. Like cities, airports have myriad communications

⁵ *Further Notice* ¶ 125.

requirements essential to the safety and well-being of constituents. Land mobile communications systems are used to respond to airport emergencies, such as injuries and other medical crises and security concerns. In addition, effective land mobile communications help prevent delay of aircraft turnaround by enabling efficient gate and baggage operations and by permitting the dispatch of tugs, baggage carts, catering trucks, wheelchairs, and airport personnel.

Although aircraft are guided by air traffic control personnel and the FAA tower during flight and while on the runways, once an airplane is at the gate, the airlines themselves bear complete responsibility for the safety of passengers and the plane itself. From that point forward, the airlines are responsible for coordinating all activities involving the safety and welfare of passengers, the provision of all other passenger services, aircraft maintenance and preparation, baggage handling, delivery of fuel, and aircraft provisioning.⁶ New communications offerings are continually being

⁶ Examples of the types of services provided by ARINC on its 800 MHz trunked land mobile systems, which are similar to ATU operations, and by the airlines on their ATU systems include coordinating passenger connections to flights, alerting ramp supervisors and other authorities of passengers in need of medical attention, apprising personnel of the status of flights and gate number, controlling crowds, notifying ramp and security personnel of suspicious packages or baggage, coordinating the transfer of baggage and other property between connecting flights, notifying weight and balance organization of load "close-out" information essential to proper take-offs and landings, assisting airline and law enforcement personnel in interdicting suspicious passengers or baggage and preventing possible criminal activity, coordinate U.S. Customs inspections on international flights, verifying I.D.'s at entry gates to airport facilities, effectuate maintenance calls to aircraft, patch into air-ground frequencies to communicate with pilots concerning safety measures, such as de-icing, report conditions on runways and ramps, notify passengers in the event of needed repairs to

(continued...)

designed in an effort to make airport operations increasingly more safe and efficient. For example, the use of data radio for baggage and cargo tracking, manifest checking, and airport vehicle position reporting is currently under development. Although these new innovations will further enhance the efficiency and safety of air terminal operations, each new application creates a corresponding increase in the demand for ATU communications capacity.

As noted above, the technical requirements for ATU operations are unique in several respects that make common carrier offerings unsuitable as ATU service providers. In particular, land mobile airport communications are complicated by limited geographic coverage requirements (most airports cover an area of only a few square miles), the required use of relatively low power devices (ATU operations are generally limited to 20 watts base and 3 watts portable), the need for extremely quick and reliable transmissions, and unusual system configuration requirements that complicate radio penetration because of the presence of numerous metal structures and strict limitations on the permissible height and location of antennas. By contrast, common carrier systems are generally tailored toward the provision of wide-area services of a lower grade than required for ATU operations. The operations of SMRs, for example, are based on different dynamics and cannot accommodate ATU traffic volumes or provide the requisite service flexibility, reliability, and penetration

⁶(...continued)
deboard aircraft, organize snow removal on ramp areas, contact fire department and other officials in the event of fuel spills.

capabilities that are integral to ATU operations. Similarly, because of frequent access delays of up to several minutes during peak demand times, most common carriers that offer interconnected services are unable to guarantee the speed of access necessary to ensure timely receipt of ATU communications.

In view of the above, it has become clear the only means for satisfying the existing and continually growing air terminal communications requirements is through the availability of additional channel capacity in the immediate area of the nation's airports. Furthermore, it is equally plain that this additional capacity must come from increased efficiency in the currently available spectrum -- most new spectrum is being made available to large-scale common carrier systems that are inappropriate for the airlines' needs, and all existing spectrum is already fully utilized. As a result of this predicament, many airlines have already begun shifting to more spectrally efficient systems so that they can increase the communications capacity of existing resources. For example, a number of air carriers are already employing 12.5 kHz equipment to enable access to the 12.5 kHz split channels, and some have already converted 50% or more of their equipment to the narrower bandwidth. In addition, ARINC is implementing digital communications to increase the capacity of its 800 MHz trunked land mobile radio system.

III. Efficient Use Of The ATU Channels Will Be Maximized If The Commission Combines Its New Narrowband Channel Plan With Rules And Policies That Preserve The Existing Rules Governing Airlines' Exclusive Use Of The ATU Channels In And Around Airports And If The Agency Designates A Frequency Coordinator Familiar With ATU Operations.

The rules adopted by the Commission in the Report and Order portion of PR Docket No. 92-235 lay the groundwork for the development of highly efficient ATU systems. For example, the Commission has allowed the ten ATU channels to remain together as a single 250 kHz block. In accordance with the new 6.25 kHz narrowband channel plan, this will produce a contiguous 40-channel block for future ATU operations.

ARINC and the air transport industry agree that the availability of a contiguous 40-channel block will greatly increase the efficiency of ATU communications by allowing the introduction of new technologies, including digital multiple access techniques and centralized trunking. In addition, however, these entities strongly believe that greater spectrum efficiency will be attained if the Commission continues allowing airlines to obtain industry shared exclusivity on the ATU channels in and around airports and designates a frequency coordinator familiar with ATU operations.

In the *Further Notice*, the Commission proposed a number of alternative mechanisms for increasing PLMR licensees' incentives to use spectrum efficiently. Specifically, the Commission proposed to allow licensees to obtain shared exclusivity with the right to lease excess capacity. As alternatives to or in conjunction with shared exclusivity, the agency also proposed to implement market based user fees and/or issue

future licenses via competitive bidding.⁷ Although ARINC generally agrees with the Commission that channel exclusivity "is necessary to facilitate the introduction of spectrum efficient technologies, [such as] centralized trunking and TDMA" and "generally translates into better service for the licensee,"⁸ ARINC offers no comment on the Commission's proposals as applied to PLMR frequencies generally. ARINC notes, however, that the Commission's existing rules already afford "airline shared exclusivity" on the ATU channels in and around airports. In addition, it is impossible to lease excess capacity on the ATU channels because of the use restrictions applicable to the ATU frequencies. The requirements and limitations currently embodied in the rules were promulgated to ensure effective air terminal communications while concomitantly affording other Business Radio licensees access to ATU spectrum where appropriate. The current rules have served these purposes, and should be retained.

In particular, in accordance with Section 90.75(c)(25) of the rules, the ATU frequencies are generally only available for assignment to stations located on or near the airports listed in the rules, and may be assigned only to persons engaged in furnishing commercial air transportation service or to a corporation or association for the purpose of furnishing radio communications service to persons so engaged in accordance with the shared use provisions of Section 90.179. Stations on the ATU frequencies are to be used only in connection with the servicing and supplying of

⁷ *Further Notice* ¶¶ 118-147.

⁸ *Id.* ¶ 125.

aircraft at the listed airports. In addition, the ATU frequencies are available for assignment to stations in the Business Radio Service for use at locations 80 or more kilometers (50 or more miles) from the coordinates of the delineated airports and at a maximum effective radiated power (ERP) of 300 watts. The rules also allow for assignment of the ATU frequencies to low power (2 watts or less transmitter output power) stations in the Business Radio Service for use in areas 16 or more kilometers (10 or more miles) from the listed airports.

In ARINC's experience, the airlines' exclusive use of the ATU channels has resulted in spectrum efficiency because the demands of the air transport industry are such that ATU licensees are required to pursue the most efficacious use of available spectrum in order to satisfy their own extensive communications requirements. In this environment, user fees and competitive bidding are unnecessary as mechanisms for promoting effective spectrum management. Moreover, user fees and auctions would likely hinder effective use of the ATU channels by increasing the possibility that ATU communications will be provided by common carriers whose offerings are inappropriate for the special communications needs faced by the airlines at air terminals.

As mentioned, however, ARINC also believes that efficient and effective use of ATU frequencies will be further maximized by the designation of a single frequency coordinator familiar with the special communications requirements presented at air terminals. As discussed above, airports require extensive communications services that are integral to the health, safety, and well-being of the traveling public and airport

personnel. At the same time, because of the architecture of airports, there are numerous technical impediments to the successful completion of land mobile radio transmissions at air terminals. In these circumstances, the quality of service necessary for effective ATU communications can best be achieved through the appointment of a frequency coordinator well aware of the essential role of effective air terminal communications and the unique technical characteristics at most air terminals.

ARINC is the logical choice for coordinator of the ATU channels because it previously served this function and has remained involved in the provision of ATU communications. ARINC was the original coordinator for the ATU channels frequencies. In 1986, in conjunction with the Commission's effort to update and modify the rules governing the frequency coordination process, ARINC requested that its coordination authority be transferred to the National Association of Business and Educational Radio (NABER).⁹ In doing so, ARINC noted that all of the ATU frequencies were assigned at most airports, leaving little coordination effort.¹⁰ ARINC suggested that NABER perform what coordination remained on the ATU channels because these frequencies are also available to the Business Radio Service, which had been coordinated by NABER since 1970.¹¹

⁹ Frequency Coordination in the Private Land Mobile Radio Services, PR Docket No. 83-737, 103 FCC 2d 1093, 1137 (1986) (Report and Order).

¹⁰ *Id.*

¹¹ *Id.*

The new frequency plan contemplated as a result of channel splitting will require extensive coordination, and the industry has requested that ARINC once again play an active role in the coordination of the ATU channels. ARINC and the industry agree that the combination of the increasing need for reliable air terminal communications, the growing congestion on the ATU frequencies, and the Commission's proposal to allow shared exclusivity on the PLMR channels has created an environment that requires that the ATU frequencies be coordinated by an entity that understands the specific problems of ATU licensees and that is capable of making the most efficient use of available spectrum options. Accordingly, on behalf of the air transport industry, ARINC requests that it be designated as the exclusive frequency coordinator of the forty 6.25 kHz ATU channels within 50 miles of the airports listed in 47 C.F.R. § 90.75(c)(25)(viii). Pursuant to this role, ARINC would also process any agreements for industry shared exclusivity on the ATU channels within 50 miles of any airport listed in 47 C.F.R. § 90.75(c)(25)(viii). NABER's successor, The Personal Communications Industry Association (PCIA), would continue coordinating all other operations on the ATU frequencies.

Redesignation of ARINC as coordinator of the ATU frequencies will serve the public interest by helping to ensure that ATU communications needs are met successfully. In addition, coordination by ARINC will facilitate the efficient use of ATU spectrum by ensuring that users migrate to higher capacity systems capable of providing the extensive communications services necessary for effective ATU

operations. Likewise, because of its familiarity with ATU operations, ARINC will be able to match users with the channels and systems that best meet their needs.

Notably, the industry prefers designation of ARINC as frequency coordinator over the Commission's proposal to allow competition among frequency coordinators¹² because of the unique aspects of the ATU environment. In the industry's view, competitive coordination of the ATU channels will not serve the needs of the airlines or the traveling public because the incentives of the coordinators will be contrary to the efficient use of the channels. Private frequency coordinators were originally established because they understand and represent the user community and, as a result, are uniquely qualified to assign frequencies where compatible operations will permit shared spectrum use. In this way, the private sector essentially exercises its judgment as to what frequency assignments are in the public interest and the best interest of users. In an environment such as ATU operations, where communications systems must be engineered-in on the basis of a number of variables defined by the architecture of the airport, the concept of competing coordinators may actually undercut spectrum efficiency and the reliability of channel assignments because Coordinator A may not understand the recommendations made by Coordinator B -- and may be driven by competing considerations -- causing Coordinator A to make an assignment inimicable to a prior assignment made by Coordinator B. Designation of a single frequency

¹² *Further Notice* ¶ 50.

coordinator, such as ARINC, familiar with needs of users and, in fact, owned by those users, avoids these problems.

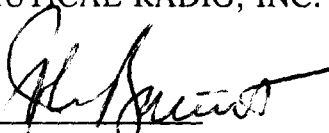
IV. Conclusion

For all of the foregoing reasons, ARINC and the air transport industry support the Commission's efforts to promote efficient use of PLMR spectrum. The air transportation industry is heavily dependent on land mobile communications in and around airports both to facilitate effective and timely airplane arrivals and departures and as a means for ensuring the health and safety of the traveling public. In the views of ARINC and the industry however, efficient use of PLMR spectrum will be further promoted and the communications needs at air terminals met more effectively if the Commission maintains its current rules governing airline shared exclusivity on the ATU channels and designates a frequency coordinator familiar with the peculiar communications requirements at air terminals.

Respectfully submitted,

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